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FREEHAND COOKING ON SCIENTIFIC PRINCIPLES

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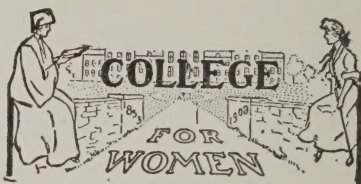
CHICAGO
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EDUCATION AND LIFE

I. Typical Schools



Home School for Girls



II.

“To This Favor Shall She Come at Last”



FREEHAND COOKING

THE purpose of this Bulletin is to tabulate the material in *Principles of Cookery* and to give the comparatively few fundamental recipes in cooking which are capable of infinite variation.

Exact proportions, conditions, and materials are essential to obtain identical results in cooking, but materials vary somewhat and conditions differ, so that it is often necessary to modify a recipe. By "free hand cooking" is not meant hit or miss cooking, or cooking by guess, but the compounding of food materials on scientific principles—not following blindly by "rule of thumb" recipes which may have been made for different conditions.

WEIGHTS AND MEASURES.

3 teaspoons=1 tablespoon	2 pints=1 quart
16 tablespoons=1 cup	4 quarts=1 gallon
2 cups=1 pint	1 cup=8 ounces (volume)

A gallon of water weighs 8 1/3 pounds—a cup of water, 8 1/3 ounces (avoirdupois). A gallon contains 231 cubic inches.

All materials are measured level, i. e., by filling cup or spoon more than full and leveling with a case knife. This applies to liquids which "round up" in spoons. Flour, meal, and fine sugar are measured after sifting. Measuring cups are not always accurate and ordinary tea and tablespoons vary considerably.

Test spoons with each other and with the cup before using.

APPROXIMATE MEASURE OF ONE POUND.

2 cups milk	2 5/6 cups granulated cornmeal
2 cups butter	2 2/3 cups oatmeal
2 cups chopped meat	6 cups rolled oats
2 cups granulated sugar	4 1/3 cups rye meal
2 2/3 cups brown sugar	1 7/8 cups rice
2 2/3 cups powdered sugar	2 1/3 cups dry beans
3 1/2 cups confectioners' sugar	4 1/3 cups coffee
4 cups patent flour	8 large eggs
4 cups entire wheat flour	9 medium eggs
4 1/2 cups Graham flour	10 small eggs

Note.—Read "tablespoons" in place of cups in the above and the weight is about 1 ounce.

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No table of weights to measure can be more than approximate, as different samples vary in weight for bulk. In truly scientific cookery quantities should be measured by weight. The table is useful for comparison, i. e., powdered sugar is more bulky than granulated and less so than confectioners', hence the greater sweetening power of granulated; ordinary white flour (sifted) is less bulky than Graham flour, and so on.

Experiments have shown that there may be a difference of 25 per cent in the weight of a "cup of flour" measured by different persons in different ways. One method is to sift the flour onto a square of glazed paper (or oil cloth) and pour it into the cup placed on another piece of paper—tap the side of the cup once with a knife and level.

METHODS OF APPLYING HEAT.

BROILING—Cooking before or over glowing coals or under gas. Radiant heat. High temperature at first to sear outside, thus developing flavor and retaining juices; then lower temperature for the heat to penetrate and to avoid burning.

PAN BROILING—Cooking on very hot griddle with only sufficient fat to prevent sticking.

ROASTING—Same as broiling, superseded by baking in oven.

BAKING—Cooking in oven by heated air and radiation.

Slow oven, 270°—350° F.

Moderate oven, 350°—400° F.

Quick oven, 400°—480° F.

(Temperatures taken by a thermometer through the top of a gas stove oven.)

BOILING—Cooking in boiling water, 212° F.

STEWING—Cooking in water at temperature 160° to 180° F.

STEAMING—Cooking in contact with steam, 212° F.

DRY STEAMING, as in a double boiler, 192° F.

FRYING—Cooking by immersion in deep fat, approximately 350° F. for uncooked foods, 380° F. for cooked foods. The fat used: all lard, 2/3 lard and 1/3 beef suet, "cod fat" from the flank of beef, oil, "cottolene" and mixtures. Temperatures vary to produce similar effects with different fats.

SAUTEING—Cooking in small quantity of fat—often called frying.

BRAISING—Combination of stewing and baking. Meat is often first seared to develop flavor and prevent escape of juices.

FRICASSEING—Combination of sautéing and stewing.

COMPOSITION OF RAW FOODS.

Parts in 100 (approximate).

Wheat Flour—12 water, 12 gluten, 75 starch, 1 fat.

Cornmeal—12 water, 9 protein, 75 starch, 2 fat.

Beans and Peas, dry—13 water, 24 legumen, 60 starch, 2 fat.

Potato, white—78 water, 2 protein, 18 starch, trace of fat.

Parsnips, Carrots, Turnips—85 water, 1 proteid substance, 9—12 starch and sugar, $\frac{1}{2}$ fat.

Banana—75 water, 1 protein, 22 sugar and starch, $\frac{1}{2}$ fat.

Loin of Beef (avg.)—60 water, 13 protein, 20 fat.

Eggs—74 water, 13 albumen, 10 fat.

Egg, white—86 water, 12 albumen, no fat.

Egg, yolk—50 water, 16 albumen, 33 fat.

Milk—87 water, 3 casein, 5 sugar, 4 fat.

Cheese—33 water, 26 casein, 33 fat.

Nuts—3 water, 20 protein, 15 starch, 55 fat.

Butter—12 water, 1 protein, 85 fat.

Lard, Olive Oil—100 fat.

All the above foods except refined fats, sugar and starch, contain from $\frac{1}{2}$ per cent to 1 per cent of *mineral matter* (salts), apparent when the foods are burned as *ash*. Butter and cheese have 2 per cent or 3 per cent of common salt added.

Protein foods are eggs, meats, fish, cheese.

Starchy foods are the grains—wheat, rice, rye, oats, corn, etc., beans, peas, potatoes, chestnut.

Fats are prominent in fat meats, nuts, cream, butter, lard.

Cellulose or woody fiber is found in vegetables, unscreened flours and meals, and in fruits, especially when unripe.

EFFECT OF HEAT ON FOOD MATERIALS.

STARCH absorbs water, swells and becomes partially soluble in water. This begins at about 150° F. Dry starch begins to change to dextrine at about 320° F.

CELLULOSE itself is not affected by cooking, but the connecting substances are softened and it may be separated.

ALBUMEN is hardened, "coagulated," and will no longer dissolve in water. Temperature about 160° F. Other proteins, as the *gluten* of flour, *casein* of milk, *legumen* of

peas and beans, *myosin* of meat, are hardened somewhat.

GELATIN is formed from *gristle* and *connecting tissue* of meat, and from bones, by long continued heating in the presence of water.

SUGAR is not changed at low temperatures unless acid is present. It melts at about 365° and begins to caramelize at about 420° F. Sugar, boiled with acid, changes slowly to glucose or non-crystallizing sugar.

FAT is not changed, except at a very high temperature, 500° F. and over, when it is broken apart—"split"—into fatty acid and glycerine. Some of the glycerine is changed to "acrolein," which is very irritating to the mucus membrane, as is recognized by the smarting sensation given to the eyes and nose when fats are heated too hot. Butter begins to "split" at 374° F, lard at 446° F, olive oil at 630° F.

BAKING POWDER, a mixture of cooking soda and an acid substance, as cream of tartar, or phosphates, or alum, undergoes chemical change; the acid part of the mixture drives out the carbon dioxid gas of the soda and salts—as Rochelle salts, or phosphates, or alumina compounds—are formed.

The heat of the oven expands any air or gas in the food, evaporates part of the water and drives out volatile substances like alcohol.

All these changes are, for the most part, physical rather than chemical in their nature. For example, in a cake after baking, the sugar is still sugar, the starch is still starch, the fat is still fat, and the albumen is still albumen. All the materials have been blended, flavors having been developed through minor but complex chemical changes and a small proportion of the starch and sugar in the crust have been changed to dextrin and caramel.

TEMPERATURE AND TIME OF COOKING.

All food materials are poor conductors of heat—it takes time for the heat to penetrate.

The correct time and temperature depends on (1) what

is to be accomplished, (2) size to thickness, i. e., the extent of surface exposed to the heat, compared to the bulk.

Foods with a large proportion of eggs require low temperature to prevent toughening.

Starch requires nearly the temperature of boiling water for cooking.

No food containing much water can be raised to a temperature above the boiling point—212° F. Water gives off vapor at all temperatures, but at 212° F. steam forms rapidly and in so doing absorbs a large quantity of heat. No brown crust can be formed until the water from the surface is nearly all evaporated. A full oven in which much water vapor is being given off requires the application of more heat than when only one or two dishes are in it.

In baking doughs, the larger the mass the lower must be the temperature in order that the heat may have time to penetrate to the interior and expand the gas and harden the albumen and gluten. If the temperature is too high at first, a crust forms, preventing the proper expansion of the loaf and hindering the penetration of the heat.

Thin loaves, pieces of meat, etc., need much less time for cooking, because the heat penetrates quickly. Higher temperatures may be used, as the food is cooked before the surface begins to be burned.

Mixtures containing much sugar or molasses burn easily.

Vegetables containing much fiber need long boiling to soften them and separate the cellulose. Young, green vegetables contain less fiber and require less time in cooking.

Bearing all the above in mind, the following tables may serve as a general guide for beginners. When it is possible to do so, TEST.

TIME TABLE.

BOILING

Meats (4 to 5 lbs.)—2 to 5 hours.
 (Tough meats should be kept below boiling, 180° F.)
 Fish (2 to 5 lbs.)—30 to 45 minutes.
 Ham (12 to 14 lbs.)—4 to 5 hours.
 Corned Meat (6 to 8 lbs.)—4 to 6 hours.
 Potatoes, white—20 to 30 minutes.
 Potatoes, sweet—15 to 25 minutes.
 Peas, green—20 to 60 minutes.
 Beans, string— $\frac{1}{2}$ to 1 hour.
 Beets, young—45 minutes.
 Beets, old—3 or 4 hours.
 Onions—40 to 60 minutes.
 Cauliflower—20 to 25 minutes.
 Cabbage, cut up—20 to 25 minutes.
 Turnips, parsnips—30 to 45 minutes.
 Carrots—1 hour; less if young.
 Green corn—8 to 15 minutes.
 Spinach—15 to 20 minutes.
 Squash—20 to 30 minutes.
 Asparagus—20 to 30 minutes.
 Diced Vegetables—10 to 20 minutes.

BAKING

Beef rib (medium, 4 lbs.)—1 hour, 15 min.
 Beef rib (medium, 8 lbs.)—2 hours, 15 min.
 Leg of lamb—1 hour, 30 minutes.
 Pork (rib)—3 to 4 hours.
 Veal (leg)—3 to 4 hours.
 Chicken (3 to 4 lbs.)—1 to 1½ hours.
 Turkey (8 to 10 lbs.)—2 to 3 hours.
 Fish (3 to 4 lbs.)—45 to 60 minutes.
 Braised beef—4 to 5 hours.
 Bread, white—45 to 60 min. depending on shape of loaf.
 Bread, Graham—35 to 45 minutes.
 Quick Doughs—8 to 15 minutes.
 Cookies—8 to 10 minutes.
 Cake, thin—15 to 30 minutes.
 Cake, loaf—40 to 60 minutes.
 Pudding, Indian, etc.—3 hours or more.
 Bread Pudding—20 to 45 min., depending on shape and number of eggs.
 Pies—30 to 45 minutes.
 Scalloped Dishes—15 to 20 min.
 Baked Beans—12 hours or longer.

OVEN TEMPERATURES.

	ENTER AT	KEEP AT
Roast Meats	480° F.	350° F.
Fish	425° F.	350° F.
Bread	440° F.	400° F.
Popovers	480° F.	450° F.
Cookies, Puff Paste	480° F.	450° F.
Quick Doughs	480° F.	480° F.
Ginger Bread and Molasses Mixture	380° F.	380° F.
Plain Cake	380° F.	380° F.
Sponge Cake	350° F.	340° F.
Baked Custard	350° F.	Higher in water.

These temperatures are for gas ovens, with thermometer through the top. An oven door "thermostat" should register from 50° to 70° less. Few of these are accurate in their readings, but after being tested a few times they are useful in obtaining desired temperatures thereafter.

PROCESSES

In addition to the methods or processes of applying heat, there are a few fundamental processes in cooking, i. e., thickening, leavening, shortening and flavoring.

THICKENING AGENTS.

The common thickening agents are flour, corn starch, eggs, gelatin, sea moss, junket for milk, and pectin of unripe fruits for jellies and freezing.

One level tablespoon of flour will thicken one cup of liquid for soups.

Two level tablespoons of flour will thicken one cup of drippings or other liquid for gravies and sauces.

Five level tablespoons of browned flour will thicken one cup of liquid for gravy.

The thickening power of corn starch is about twice that of flour.

Four level tablespoons of corn starch will stiffen about one pint of liquid, as in corn starch pudding.

One level tablespoon of granulated gelatin will stiffen about one pint of liquid, if cooled on ice.

Two good sized eggs to one pint of milk make a custard—one egg to a cup for soft custard or baked cup custard: three eggs to a pint of milk for a large mould custard.

LEAVENING AGENTS.

Doughs are made light or porous in the following ways:

- (a) By the production (and expansion by heat) of carbon dioxid gas from the baking soda in baking powder or baking soda, combined with some acid substance.
- (b) From carbon dioxid gas produced by the growth of yeast—a plant.
- (c) From the expansion of entangled air, incorporated in the dough by means of beaten eggs, especially the white, and by the beating batters, and by folding thick doughs.
- (d) From the expansion of water to steam.

Two level teaspoons of baking powder are equivalent to one-half teaspoon of baking soda combined with one and one-fourth (i. e., slightly rounded) teaspoon of cream of tartar; or one cup of thick sour milk, or one cup of molasses, in place of the cream of tartar.

Two cups of flour made into a soft dough requires two to four level teaspoons of baking powder.

Batters and muffin mixtures require somewhat more baking powder to the flour than soft doughs.

One teaspoon less of baking powder may be used for each egg added.

The yeast plant grows best at 75° to 90° F. It changes *sugar* into alcohol and carbon dioxid gas. Flour contains a small proportion of sugar and during bread making some of the starch is changed into sugar, but the yeast begins to act more quickly if a little sugar or glucose is added at first. Salt and fats hinder the growth of the yeast. Low temperatures stop the growth almost completely; high temperatures kill the plant.

When eggs are used as leavening agents, the whites are beaten separately, as they will hold much more air than the yolks, and folded into the mixture the last thing, breaking as few air cells as possible.

When air is depended on for leavening agent, all materials are kept as cold as possible. Cold air expands more on heating than warm air. In pastry making, heat also melts the fat, so that the dough cannot be handled.

SHORTENING.

Fats are added to doughs to make the product brittle—friable—"short," and to enrich the mixture. The fat counteracts the adhesive properties of the gluten and starch in flour.

Pastry flours contain less gluten than bread flours and so require less shortening.

Butter and oleomargarine contain about one-eighth water and salt, and thus have less shortening powers than lard, drippings, cottolene, and the like, which contain no water.

Two cups of flour (eight ounces) made into puff paste requires eight ounces (one cup) of shortening.

Two cups of flour in ordinary pie crust requires four ounces (one-half cup) of shortening.

Two cups of flour in cookies requires four ounces (one-half cup) of shortening, or less.

Two cups of flour in cake requires about three ounces of shortening.

Two cups of flour in short cake requires two ounces (one-fourth cup) of shortening, or more.

Two cups of flour in tea biscuits requires one-half to one ounce (one to two tablespoons) or more of shortening.

In yeast doughs less shortening is used—from one-half to an ounce to two cups of flour. The tenacity of the gluten is required to hold the carbon dioxid gas slowly formed by the yeast, hence too much shortening prevents proper rising.

Shortening for batters may be *melted* and mixed in, but in doughs which are to be rolled—pastry, cookies, short-cake, biscuit, etc.—the fat should be *cold* and hard and cut into the flour with a knife, or rubbed in with the tips of the fingers.

FLAVORING.

The flavoring materials most commonly used are salt, sugar, spices and extracts. The fine art of cookery consists of developing the full natural flavor of the foods themselves and in combining them in pleasing ways.

The amount of salt to be used depends, in general, on the *total volume* of the food. When food tastes salty, too much has been used. A safe proportion is one teaspoon salt to one quart of liquid in soups, cereals, sauces, or to one quart of flour in doughs. When the flavors are delicate, somewhat less salt is used, and with strong flavors, somewhat more. Cakes in which much salt butter is used do not need more salt.

The quantity of sugar to be used depends on the taste desired. Foods served frozen need more sweetening than when at ordinary temperatures. On the other hand, foods that are served warm taste somewhat sweeter than when at ordinary temperature.

RECIPES

The following recipes were furnished by Miss Anna Barrows, teacher of cookery, Columbia University, author of *Principles of Cookery*, or adapted by the editor from the *Home Science Cook Book*,* to which the reader is referred for a full collection of recipes.

WATER: EXTRACTING FLAVOR.

Tea.

Heat an earthenware teapot with hot water. Empty it and put in one teaspoon of tea for each measuring cup of fresh *boiling* water. Let it stand in a warm place two or three minutes. Strain and serve at once. If the tea boils or stands too long with the leaves it is unfit to drink.

Coffee.

Use one-fourth cup of coffee for one pint of water. Place fine ground coffee in strainer in the coffee pot; add actually boiling water *slowly*, a spoonful or two at a time. Cover between additions. Pour through a second time if desired stronger.

OR: Mix one-fourth cup coffee and one teaspoon beaten egg with a little cold water, add the remainder of one pint of water boiling hot. Let it boil up, pour from the spout and turn back into the pot and leave for ten minutes where it will keep hot but not boil.

Stock.

Stock is the basis for all soups, except milk or cream soups, to which it is sometimes added. From a pint to a quart of cold salted water is used to each pound of meat and bone, both of which should be in small pieces. Let stand one hour, heat slowly and simmer gently for four hours or more, strain and cool quickly. Remove the hardened fat before using. About a cup of mixed vegetables—carrot, onion, parsley, celery, etc.—may be added during the last hour. Mixed herbs and spices, as bay-leaf, blade of mace, two or three cloves and pepper corns, may be tied in cheese cloth and removed from the liquor when sufficient flavor has been extracted.

*Home Science Cook Book, by Anna Barrows and Mary J. Lincoln, 281 pages; published by Whitcomb and Barrows, Boston. Price, from the School, \$1.00 post-paid.

BOUILLON—usually made from beef with little bone and no vegetables. BROWN STOCK—some of the meat and a part of the vegetables browned in hot fat or marrow. WHITE STOCK—made from chicken, veal, or fish; no flavoring which gives color added. MACARONI, VERMICELLI, NOODLE, RICE, BARLEY SOUP and the like—cook about one-fourth cup of dry material until tender and add a quart of hot stock, or use cooked left-overs. JULIENNE SOUP—one-half cup mixed cooked vegetables cut in cubes, strips or fancy shapes, to one quart of stock.

RESTORING WATER.

Dried Fruits and Vegetables.

Pick over, cover with cold water, leave for half an hour, then wash thoroughly, inspecting each portion and drain. Again cover with cold water and soak 12 to 24 hours, and then cook slowly until tender. Add sugar if desired for sauce when nearly done, or use like fresh fruit for pies, short-cake, etc.

Prunes, apricots, peaches, apples, pears and vegetables are treated in this way.

THICKENING.

Sauces.

Methods of mixing: (1) Melt butter (or other fat) in saucepan, stir in dry flour, cook and stir until frothy all over, then add liquid slowly, hot or cold, while stirring; cook again until thick, stirring until smooth.

(2) Rub butter and flour together and stir into the warm liquid in a double boiler, then cook and stir until thick and smooth.

(3) When cream or less butter is used, rub the flour smoothly with a little cold liquid and stir into the remainder, which should be hot, and cook in double boiler until smooth. Then add butter and seasoning.

THIN SAUCE: One level tablespoon fat, one tablespoon flour and one cup liquid, one-fourth teaspoon salt, few grains pepper (white).

Suitable for creamed potatoes, macaroni, toast, etc.

MEDIUM SAUCE: Two tablespoons fat, two tablespoons flour and one cup of liquid. Seasoning.

For general use with fish and vegetables.

THICK SAUCE: Two to four tablespoons of fat and three or four of flour for each cup of liquid, either milk or milk and stock.

This is the basis of souffles and croquettes.

WHITE SAUCE may be varied by different flavors and garnishes, such as capers, celery, mushrooms, oysters, lobsters, etc., etc.

TOMATO for the liquid in sauce may be seasoned with onion, herbs and spices, by cooking them with it for a short time before straining.

SPANISH SAUCE is tomato sauce with the addition of onion and peppers.

DUTCH OR HOLLANDAISE SAUCE: To one cup white or milk sauce add one or two beaten egg yolks and cook in double boiler like custard. Flavor with one tablespoon lemon juice.

BROWN SAUCE FOR ROAST OR PAN BROILED MEATS: After placing the meat on the platter drain out any fat in the pan and put some water to soak off the browned juice and flour.

For each cup of gravy put two tablespoons of the fat in a saucepan and brown two tablespoons of flour in it; then add one cup of the water from the pan. Cook like white sauce. Season as desired with salt and pepper.

OR, Melt and brown two tablespoons of butter in a saucepan; add two or three tablespoons of flour and continue the browning. When coffee color, add one cup water or stock or milk.

Welsh Rarebit.*

Heat one-half cup of cream in the blazier of a chafing dish or in a skillet, add one tablespoon of butter creamed with one teaspoon of corn-starch, one-fourth teaspoon of salt, and a few grains of cayenne. When thick, set over the hot water or heat very slowly and add one-half pound of soft mild cheese cut up fine and one-half teaspoon of mushroom ket-

*From Home Science Cook Book.

chup or Worcestershire sauce or one-fourth teaspoon of mustard. Stir until the cheese is melted and pour over crackers or thin toast.

Cream Soups.

Cook the vegetable till soft and rub through a strainer, using all or a part of the water in which the vegetable is cooked, except with potatoes. Combine with an equal quantity of white sauce or white stock or mixture of the two. Season. If too thick, add hot milk. Beaten egg may be added just before serving if too thin.

Asparagus, Carrots, Cauliflower, Celery, Corn, Cucumbers, Lettuce, Mushrooms, Onions, Spinach, Summer Squash, Turnips, Water Cress.

CREAM OF PEAS, BEANS, LENTIL, POTATO and other thick soups have half quantity or less of white sauce added to keep the materials from settling.

CREAM OF CHICKEN, FISH, etc., made of stock from bone, skin and other inedible portions combined with about equal quantities of hot white sauce seasoned in various ways.

Corn Starch Blanc Mange.

Blend two tablespoons cornstarch with an equal bulk of milk, heat remainder of one cup milk in double boiler. Stir the hot milk into the moistened starch, return to double boiler, stir on stove till thick, put over water, cover and cook twenty to thirty minutes or longer. Add two tablespoons sugar, a bit of salt, flavor and put in moulds.

VARIATIONS: For liquid use part thin cream and part strong coffee, or all fruit juice.

Put layers of raw or cooked fruit alternately with the blanc mange in the moulds.

Blend two tablespoons of cocoa with the sugar before it is added to the cornstarch mixture.

Irish Moss Blanc Mange.*

Soak one-half cup of Irish moss in cold water, pick over, wash and cook with one quart of milk in double boiler for about half an hour. Strain, add a teaspoon of vanilla or

*From: Home Science Cook Book.

other flavor and one-fourth teaspoon of salt. Put in moulds. *Or*, cook moss in one pint of water, strain and add one pint of scalded thin cream.

Use of Gelatine.

One level tablespoon granulated gelatine will stiffen about one pint liquid. Different makes of sheet, shredded, granulated and powdered gelatine may be used interchangeably by weight. A larger proportion of gelatine is required for large moulds than for small. A little salt improves most gelatine combinations.

Soak gelatine in cold water until soft, dissolve by adding boiling liquid, sweeten and flavor with coffee, lemon, or other fruit juices and pulp. Keep the proportions of gelatine and total liquid right. A little more gelatine is required in hot weather, unless ice is used.

Such jellies may be served with whipped cream or boiled custard. Every package of gelatine is accompanied with directions for its use.

Fruit Pudding.

Make a jelly flavored with fruit juice, slightly increasing the proportion of gelatine. As it begins to stiffen, combine nearly an equal amount of fruit with it. With each half cup of jelly may be used one date, one-half fig, two or three almonds, one-fourth orange, one-fourth banana, etc.

Snow Pudding or Fruit Sponge.

Beat one egg stiff and add one cup half stiffened jelly gradually. *Or*, beat the jelly till frothing and blend the stiff egg with that. Mould and chill. Serve with soft custard sauce made of the egg yolks.

Bavarian Cream.

Stiffen a soft custard, or fruit juice, or combination of the two, with gelatine. As it begins to stiffen, fold in stiff whipped cream.

Baked Custards.

Scald one pint milk. Beat two eggs till smooth, add one-fourth cup sugar, a bit of salt, and blend with the hot milk. Strain into buttered molds, set in a pan of hot water

and bake until firm. Put a thin knife blade in center of custard and if done no milk will adhere to the blade as it is removed.

The same proportions may be used for custard pies, or may be combined with cooked rice for a pudding.

Soft Custard.

Use the same proportions as for baked custards, or three egg yolks in place of two whole eggs. Pour hot milk over the beaten eggs, stirring constantly. Sugar may be added before or after cooking the custard.

Return milk and egg to the double boiler and cook, stirring all the time until the custard thickens and coats the spoon, three minutes or longer. If cooked too long the custard will curdle. Cool quickly. Flavor before serving.

Egg Timbals.

Use only one-fourth to one-half cup liquid, milk or stock, for each egg. Flavor with salt, pepper, etc. Cook like custards, turn from mold and serve hot with tomato sauce.

Thickened Custards.

Filling for Cream Puffs, Layer Cake, Sauces, Ices, etc.

Make a smooth paste with one-fourth cup flour and a little milk and scald the remainder of one pint of milk. When it is hot, blend carefully with the flour and cook in a double boiler twenty minutes or more. Then combine with the beaten yolks of two or three eggs and stir steadily while cooking three to five minutes longer. Take from the fire and sweeten and flavor according to its use. For filling for a layer cake one-fourth cup sugar may serve, while for cream puffs one-half cup or more will be needed.

The same foundation may be combined with an equal quantity of cream or of fruit juice, or of each, made very sweet and frozen as ice cream.

Frozen Desserts—General Directions.

All mixtures must be sweeter and more highly flavored than if served without freezing. Cool thoroughly before packing in ice and salt. Use three measures fine cracked ice to one measure of salt.

Lemon Ice.

Mix in proportion of the juice of one lemon, one-fourth cup of sugar and one cup of water. *Or*, make a quantity of syrup, 4 measures of sugar to 2 of water, and use 4 measures of syrup to 1 of fruit juice. Strain into a tin can or straight glass jar with a close cover. Pack this in a pail or pan with ice (or snow) and salt. Turn the can around and occasionally scrape down the ice which forms inside. Use other fruit juices in the same way—orange, pineapple, raspberry—to which lemon juice is usually added, grape juice or acid jelly.

Pineapple Sherbet.*

One can of grated pineapple, one cup of sugar, juice of two lemons, one tablespoon of powdered gelatine, one quart of water or milk.

Ice Cream.

Scald thin cream in double boiler, dissolve sugar in the proportion of one cup to a quart, add flavoring when cool—extract, one tablespoon to a quart. This is "Philadelphia" ice cream. Thickened custard made very sweet and highly flavored is often called "New York" ice cream.

Mousse or Parfait.

Mix together one cup thick cream, two tablespoons powdered sugar and flavoring. Whip cream with egg beater, skimming off froth as it rises and draining on a sieve. Return liquid to bowl and whip until no more froth will rise. Turn drained froth into a mould; cover, and bind the lid with a strip of muslin dipped into melted fat. Bury in ice and salt for three to four hours before serving.

Junket.

The active principle in junket is rennin or "rennet," which is extracted from the lining of calf's stomach. This will coagulate or thicken warm milk but nothing else. Its properties are destroyed at the boiling temperature and it has no action in the cold. Heat two cups of milk to body temperature, 99 degrees, powder junket tablet and dissolve in a little water, add one-third cup of sugar dissolved in one-

*From Home Science Cook Book.

third cup of warm water and flavoring extract. Pour into serving dishes and keep warm until set. Cool.

Caramel syrup or maple syrup may be used in place of sugar. Chocolate may be added or beaten egg yolks with beaten whites on top.

Jellies.

Pectin is the gelatinizing agent in jellies and jams. It is a substance similar to starch and is found in most fruits and some vegetables. It is most abundant when fruit is just ripe or nearly so. The making of good jelly depends on having the correct proportion of fruit juice, sugar, and *acid* and on boiling. The density of the mixture should be between 24 degrees and 30 degrees as measured by the syrup gage at the boiling temperature, and the boiling point 217 degrees F. or 103 degrees C. Long boiling alters the gelatinizing properties of pectin. Too great a proportion of sugar and violent boiling cause the sugar to crystallize in the jelly.

Pick over and clean, or pare, core and cut up large fruits, heat with or without water and cook until very soft. Juicy fruits like currants and grapes need no added water, while fruits like apples should be barely covered with water. Strain the juice from the pulp through cheese-cloth or flannel. To the strained juice granulated sugar is added usually in the proportion of pint to pint, but good jelly may be made with half the volume of sugar to juice. The proportion depends on the acid and sugar in the fruit. Heat slowly to dissolve sugar, and boil gently until proper density is obtained, skimming froth that rises. If no syrup gauge is used, test by dropping a little on a cold plate to see if the jelling point is reached. Pour into sterilized glasses and when set cover with melted paraffine.

The pulp may be squeezed in the straining bag to get a marmalade or even a second quality jelly: or, better, heat pulp again with a small amount of water and strain without pressure. This process may be repeated. Boil down somewhat and add sugar and finish as before. Jelly may be made from parings and cores.

As the presence of acid is essential to make the materials jelly, lemon or currant juice is usually added to sweet flavored

fruits. (Summary of the result of experiments made by Dr. Goldthwaite at University of Illinois and Miss White at University of Chicago).

Soft Cooked Eggs.

Place eggs in one cup of boiling water to each egg in a saucepan, cover and remove from the fire.

From five to ten minutes will be required according to the firmness desired.

Or, put one egg in one cup of cold water and bring slowly to the boiling point. Then remove the egg.

Hard Cooked Eggs.

Keep eggs in water just below the boiling point for thirty minutes. The yolks should be dry enough to mash easily. Such eggs are suitable for salads—may be warmed in any well flavored sauce, may be stuffed by blending the yolks with chopped meat or nuts or seasoning of any kind.

THICKENING AND LEAVENING.

Omelets.

There are but two types of omelet to which special names are given from the garnish added.

French Omelet.

Beat an egg slightly. Add one tablespoon water or milk, season with salt and a dash of pepper. Turn into a hot buttered frying pan, which must be perfectly clean and smooth. Lift cooked portions with a fork. Shake the pan to prevent adhesion. When all is firm, fold and serve at once.

Puffy Omelet.

Separate white and yolk of one egg. Beat white stiff, add yolk and blend together. Add salt, pepper and one tablespoon of water or milk. Turn into buttered pan and place where it will cook slowly and evenly. When firm, fold and serve. •

Two tablespoons of white sauce or bread softened in milk may be used instead of one of milk or water. Chopped parsley, or other vegetable, any nice bits of meat or fish, cheese, jelly, etc., may be folded into the omelet just before serving.

Meringues or Kisses.

Beat egg whites with a speck of cream of tartar. When stiff fold in one-fourth cup powdered sugar for each white. Flavor slightly, drop on ungreased paper, and bake slowly until dry, thirty minutes or more.

For soft meringues on puddings, use half as much sugar.

Fruit Souffles.

For each stiffly beaten egg white fold in one-fourth cup thick, sweetened fruit pulp, or marmalade, or jam. Partly fill buttered molds, and bake like custards, until firm.

Serve with soft custard as a sauce.

Sponge Cakes.

Equal measures of eggs, sugar and flour, or the weight of the eggs in sugar, and half of the weight of the eggs in flour. This also applies to the use of egg whites only as in angel cakes.

In other words, two large or three small eggs rightly blended with one-half cup each of sugar and flour and carefully flavored and baked slowly will produce such a cake as that shown on page 65.

The yolks of the eggs should be beaten until thicker and lighter colored than when beginning the process. To them add the sugar, one or two teaspoons of lemon juice and a bit of grated rind. Over the whites of the eggs sprinkle a bit of salt and beat until stiff. Fold them into the yolks and gradually sift the half cup of flour over, blending carefully without stirring. Put into the pans and bake in a gentle heat for twenty minutes, if in small cakes; twice as long if in one mass.

Cream Puffs.

In a saucepan heat one-half cup water with two ounces of butter or less. When boiling hot mix in one-half cup of flour and continue to stir while it cooks into a smooth mass. Cool till it will not cook eggs and mix in one egg and a second and beat the whole vigorously with the spoon. Shape on greased pan some distance from each other in six to twelve mounds and bake about thirty minutes according to the size. They should be light and dry when taken from the pan, otherwise they will shrink and be heavy.

QUICK DOUGHS—GENERAL PROPORTIONS.

	FLOUR	BAKING POWDER	LIQUID	SHORT- ENING	SUGAR	EGGS
Pop Overs.....	1 cup	.....	1 cup	.....	.....	1
Timbale Cases...	1 cup	.....	$\frac{1}{2}$ cup	1 tbs.	1 tsp.	1 or 2
Griddle Cakes...	1 pint	3 tsp.	2 cups	2 tbs.	1 tbs.	1 or 2
Muffins.....	1 pint	4 tsp.	1 cup	1 tbs.	.....	.....
Muffins (richer).	1 pint	2 or 3 tsp.	$\frac{3}{4}$ cup	1 or 2 oz.	$\frac{1}{4}$ cup	1 or 2
Cake.....	$1\frac{1}{2}$ cups	2 tsp.	$\frac{1}{2}$ cup	2 oz. +	$\frac{3}{4}$ cup	1 or 2
Doughnuts.....	1 pint	2 tsp.—	$\frac{1}{2}$ cup	.....	$\frac{1}{2}$ cup	1
Cookies.....	1 pint +	2 tsp.	$\frac{1}{4}$ cup	2 oz.	$\frac{1}{2}$ cup	$\frac{1}{2}$ to 1
Tea Biscuit.....	1 pint	3 tsp.	$\frac{2}{3}$ cup	$\frac{1}{2}$ oz. +	.....	.....
Shortcake.....	1 pint	3 tsp.	$\frac{2}{3}$ cup	2 oz.	.....	.....
Pastry.....	1 pint	.....	$\frac{1}{2}$ cup	4 oz.	.....	.....

LEAVENING AND SHORTENING.

Biscuit.*

Two cups sifted flour, three teaspoons of baking powder, one-half teaspoon of salt; sift together, rub in one tablespoon of shortening—butter, oleo, lard or drippings. Mix as soft as can be handled with about two-thirds cup of milk or water. Turn onto a floured board, roll gently to three quarters inch thick, cut and bake. Pastry flour makes more delicate biscuit than bread flour.

DUMPLINGS FOR STEWS: Omit shortening, add milk until dough may be dropped from the spoon into boiling stew. Cover and cook rapidly 10 minutes.

SHORTCAKE: Rub in one-fourth cup of butter in biscuit mixture. Cut like biscuit for individual shortcakes or use a square pan and divide with knife dipped in melted butter so that portions may separate readily after baking.

Use shortcake mixture for covering to meat pies, apple dumplings, etc.

Muffins.*

Sift together two cups of sifted flour, two teaspoons of baking powder, one-half teaspoon of salt, and one-half tablespoon of sugar, add one tablespoon of melted shortening, one beaten egg and one cup of milk. Mix thoroughly and bake in quick oven.

BLUEBERRY MUFFINS: Use a little less milk in muffin mixture and add one cup of blueberries and a little more sugar. Chopped apples or other fruit may be used in same way.

TEA MUFFINS: Use one-fourth cup each of sugar and shortening and two or three eggs in the muffin mixture.

Graham Drop Cakes.*

Sift together one and one-half cups of graham meal, one-half teaspoon each of salt and soda, one-fourth cup of brown sugar. Mix into a stiff batter with one scant cup of sour milk. Drop from spoon on buttered pan, or into gem pans and bake in a quick oven 15 minutes.

*From Home Science Cook Book.

Cereal Gems.*

Use even quantities of flour and softened cooked breakfast food, one teaspoon of baking powder to a cup of material, add sufficient milk to make a batter which will drop from the spoon. Mix thoroughly and bake in hot buttered gem pans.

Boston Brown Bread.

Sift together one cup of cornmeal, one cup of rye meal, or entire wheat flour, one teaspoon of soda, one-half teaspoon salt. Mix with one-half cup molasses and one cup sour milk. If not soft enough to smooth out in the bowl, add a little water. Put in greased tins with tight cover and steam three hours or more.

Corn Cake.*

Sift together three-quarter cups each of cornmeal and flour, one-half teaspoon each of salt and soda, one tablespoon of sugar. Mix with one beaten egg and one cup of thick sour milk or cream. Bake in muffin pans or single pan, twenty to thirty minutes, according to thickness.

The cornmeal may be scalded with an equal volume of boiling water, left to cool, or over night, and more shortening, two eggs and a little sugar may be added.

Griddle Cakes.*

Into one pint of sifted flour mix one-half teaspoon of salt, three teaspoons of baking powder and one teaspoon of sugar. Beat two eggs until very light, turn into one cup of milk without stirring, add the mixture to the flour with two tablespoonsful of melted butter; beat well, and add more milk to make a batter about like thick cream. Beat vigorously, especially before each frying.

Fry on hot griddle, grease with rind of pork or ham. Drop batter from end of the spoon, making circular cakes. Turn when full of bubbles.

Waffles.

Are cooked on a waffle iron, using the griddle cake mixture.

Plain Cake ("Lightning" Cake).

Place the flour sifter in the mixing bowl and put in it one and one-half cups of flour, three-fourths cup of fine granulated sugar, two level teaspoons of baking powder, one-half teaspoon of salt. Sift into the bowl.

In the measuring cup, melt one-fourth cup of butter (or oleo), break in two eggs, fill up the cup with milk. Add one-half teaspoon flavoring extract or saltspoon of spice. Mix with the dry ingredients and beat well two or three minutes. Bake in sheet or greased muffin tins in quick oven.

VARIATIONS: Add two tablespoons of cocoa, or an ounce of melted chocolate. Use one cup caramel or maple syrup in place of sugar. Leave out part of the sugar for Cottage Pudding.

Cookies.*

Rub one-half cup of butter until creamy, gradually add one cup of sugar, then put in one egg and beat together thoroughly. Next add, alternately, one-half cup of milk or water and one pint of flour, in which two teaspoons of baking powder have been sifted. Use enough more flour to make a soft dough, from one to two cupfuls, according to the nature of the flour, roll out thin, cut with a cookie cutter or in fancy shapes, and bake in a quick oven.

VARIATIONS: Before all the flour is added, divide into four portions; to one add one teaspoon of lemon extract, to another one-half cup of desiccated cocoanut; one-half ounce of chocolate melted, or a teaspoon of cocoa, sifted in with a little flour; to the fourth, one teaspoon of mixed spice and one-half cup of chopped raisins, etc. Or flavor the portions with ginger, almond with chopped almonds on top, or with dates, figs, nuts. Or use less flour and drop from a spoon for a soft thick cake.

Gingerbread.*

Sift together two cups of flour, one-half teaspoon each of salt and soda and one teaspoon of ginger. Mix with one cup of molasses and two tablespoons of fat softened in one-half cup of hot water. Bake twenty minutes or more in a moderate oven.

Doughnuts.*

Sift together four cups of flour, one teaspoon of salt, three teaspoons of baking powder, one-half teaspoon of mixed spice and one cup of sugar. Mix with one egg and one cup of milk.

Sour milk and soda may be used in place of baking powder. For richer doughnuts, two eggs and one tablespoon of butter may be used.

Plain Pastry.*

Sift two cups of flour with one-half teaspoon of salt and cut in with a knife, one-fourth cup or two ounces of shortening. Mix with about one-half cup of ice water into a stiff dough. Roll out and spread with one ounce of butter, fold and add a second ounce of butter in the same way, making one-half cup of shortening in all. For upper crusts more shortening may be rolled in if desired. Keep everything as cool as possible. The lightness of the pastry depends on the amount and coolness of the air enclosed and the flakiness on the number of layers of fat and dough produced by folding and rolling.

YEAST DOUGHS—GENERAL PROPORTIONS.

	SUGAR	SHORT- ENING	LIQUID	YEAST CAKE	FLOUR	EGGS
Bread.	1 tsp.	½ oz. +	1 cup	¼ to 1	3 cups	....
Muffins.	1 tbs.	½ oz.	1 cup	¼ to 1	2 cups	1 +
Rolls.	1 tbs.	1 oz.	1 cup	¼ to 1	3 cups	....
Fancy Rolls.	2 tbs.	2 oz.	1 cup	¼ to 1	3 cups +	1 +
Buns.	½ cup	2 oz.	1 cup	¼ to 1	3 cups +	....
Coffee Cake	¼ cup	2 oz.	½ cup	¼ to 1	2 cups	2 +

Bread—For Each Loaf—Short Process.*

One cup of scalded milk, or half milk and half water, one-half teaspoon each of salt and sugar, from one-fourth to one whole cake of yeast according to time, softened in lukewarm water, and about three cups of bread flour. Mix thoroughly and knead until the dough is smooth and springy. The dough should be warm. Let rise till double, shape, put in pan, rise again and bake. If preferred, shape into a dozen to two dozen rolls.

Entire Wheat Bread.

Scald one cup of milk; in it melt one teaspoon of butter and half a teaspoon each of sugar and salt. When lukewarm, add half a cake of compressed yeast, softened in one-fourth cup of warm water. Stir in between two and three cups of flour to make a dough stiff enough to hold its shape. Mix thoroughly with a knife, but do not knead it until after it has risen to double its bulk, then shape into small loaves, let rise until double in size, bake in hot oven about half an hour.

One-fourth cup of molasses may be used in place of the sugar if preferred.

Rolls—Long Process.*

In a bowl put one tablespoon of butter or lard, one tablespoon of sugar, one teaspoon of salt, and one pint of scalding hot milk. When cool, add one-quarter yeast cake softened in a little water, and three cups of flour. In the morning, or when light, add to this sponge about three cups more of flour, or enough to knead. Let rise till double in bulk, then shape, put in pans, rise again, and bake.

MUFFINS: Add two or three eggs to the sponge, but no more flour. Bake in muffin pans.

Coffee Cake.*

Work into one pint of light dough, two-thirds cup of white sugar, one egg, and two ounces of melted butter. Mix thoroughly to a creamy, smooth batter by beating.

*From Home Science Cook Book.

Pour into shallow pan and let rise again. Sift sugar and cinnamon over the top and bake in a quick oven. Serve warm.

Use of Stale Bread.

Bread Cases.

Cut slices of bread two inches thick and three inches long. Remove part of crumbs from the center, leaving a hollow space. Spread with butter and brown in the oven.

Croutons.

Cut stale bread into slices about one-third inch thick and then in cubes. Bake in moderate oven until golden brown.

Dry Crumbs.

Crusts remaining from croutons, etc., should be dried in the oven, rolled and sifted, the fine ones used for croquettes, etc., the coarser for stuffing or escalloped dishes.

Cracker crumbs may be used in the same way.

Buttered Crumbs.

Melt butter and stir in crumbs till the butter is evenly distributed.

One ounce of butter for one cup of crumbs is a fair proportion. Buttered crumbs seasoned and moistened are used for stuffing peppers, tomatoes, fish, poultry, etc.

Filling for Fish or Fowl.

One cup of crumbs will serve for a small fish or chicken, while a large fowl or turkey will require two or three. With each cup of crumbs blend one ounce or more of butter or chopped fat salt pork, one teaspoon parsley or mixed herbs, one-half teaspoon salt and a little pepper. Moisten with milk, water or stock. For fish season also with lemon and onion juice.

Mashed potato or chestnuts may be used instead of crumbs.

Fat—To Try Out and Clarify.

Cut the fat—beef suet or flank fat—in small pieces, removing skin and bits of lean meat. Cover with cold salted water and leave in a cold place for several hours. Drain off the water, and if possible soak again, and drain. Cook slowly in moderate oven or in upper part of the double boiler till the fat has melted and the scraps are crisp, but not brown. Strain and cool. Slices of raw potato or pieces of charcoal cooked in the fat before straining will absorb any impurities.

Beef, pork and chicken fat may be combined. Surplus fat from roast beef, corned beef, etc., may be added.

Such fat may be used for shortening muffins, gingerbread, etc., for greasing pans, for some sauces and soups, or for deep frying. Mutton fat may be prepared to add to fry fat.

Fat from bacon, ham or sausages should be reserved for hashes or warming over potatoes.

MEATS.

Broiled Meats, Chops, Steaks.

The meat should be cut in convenient pieces, and some of the bone, gristle and fat removed. Sections one inch thick will be more juicy than thinner ones. Wipe the meat with a damp cloth, grease the broiler or pan with a piece of the fat, or brush melted fat over the meat. Place the meat where intense heat will reach it at first, under the gas flame, or in a hot pan on top of the stove, or over hot coals. Turn often at first, every half minute if directly over the coals, until well seared and browned on both sides, then move it farther away from the fire so the heat may penetrate to the center without burning the outside.

As the meat is seared on the surface the juices are driven towards the center, and expanding with the heat tend to make the surface of the meat puff outward. This is very apparent between the wires of a double broiler and probably is the best indication that the meat is cooked.

Steaks one inch thick should cook in five or six minutes to be rare, eight or ten minutes to be well done, the time

varying according to the method of cooking and intensity of heat. Mutton chops may be served rare, lamb usually well done, veal and pork always must be thoroughly cooked.

Broiled meats should be served at once on a hot dish and with slight seasoning beside their own juices. If kept hot the cooking is continued too far.

Fish and chicken may be partially broiled and then finished in the oven. Apply the direct heat mainly to the cut inside surface, as the skin burns easily.

Roast Meats.

Trim, wipe, score the fat portion and rub salt into that, place on rack in pan, sprinkle flour all over it, put skin side down. Have oven very hot at first to sear outside quickly to prevent escape of juice, then reduce heat. Baste occasionally as needed with the fat which cooks out into the pan, and turn the roast over to cook it evenly.

If there is danger of burning put some water in the pan after the meat is seared, but this is not necessary if heat of oven is lowered.

A sirloin or rib roast weighing five pounds will require about one hour, or longer, if it is to be well done. A surer rule for time of cooking is to allow fifteen minutes for each inch in thickness, or twenty minutes if wanted well done.

Braised Beef.

Use a thick section of the lower part of the round, two to four pounds. Trim, wipe and sprinkle with flour, season with salt and pepper. Brown under the gas or in hot fat. Put in casserole, partly cover with water or brown or tomato sauce. Cover closely and cook in very slow oven three to five hours.

Meat Stew.

Neck or breast of lamb or veal or inexpensive cuts of beef may be used in this way. Cover bones with cold water and heat slowly. Cut meat in convenient pieces, roll in flour seasoned with salt and pepper. Fry bits of fat, then

brown sections of prepared meat and onion if desired. Put meat in kettle with bones when water is hot.

When nearly tender add carrot, turnip, peppers, or celery cut in small shapes about one cup each to one pound of meat.

Potatoes pared and cut in quarters may be added 20 to 30 minutes before serving, and dumplings 10 minutes before serving.

Escalloped Fish or Meat.

Equal measures of cooked minced meat, bread crumbs and white or tomato sauce; or, for one measure of meat, half as much sauce and one-fourth as much buttered crumbs. (Boiled rice or macaroni may be used instead of crumbs.)

Remove all uneatable portions from meat and mince or chop. Put in layers in a buttered dish, having crumbs for the last. Bake until heated through and brown on top.

Fish or Meat Loaf, or Timbales.

Remove skin, gristle and bone from meat or fish and mince fine. Combine with an equal quantity of bread crumbs or stuffing from a baked fish or roast fowl, season as desired, moisten with milk or stock. Add one beaten egg or more to each pint of the mixture. Pack in buttered moulds, steam or bake until firm in center. Turn out and serve with sauce.

Meat Loaf in Rice.

Line a mould with well-cooked rice. Fill with the meat prepared as above. Cover with rice. Steam an hour. Serve with tomato sauce.

Fish Balls.

In a stew pan put one pint potatoes, pared and quartered, and one cup salt cod fish which has been picked apart in cold water. Cover with boiling water and cook until the potatoes are soft. Drain in a colander till no water can be shaken out. Return to pan, mash thoroughly, add salt if needed, a shake of pepper, one teaspoon butter, one raw egg, and beat all together. Shape on a spoon or in small balls and fry in deep fat, hot enough to brown them in one minute. Drain on soft paper.

CEREALS AND VEGETABLES.

Breakfast Foods.

Usual proportions—one-half cup flakes or one-fourth cup granules to one cup water, one-fourth teaspoon salt to one cup water.

The denser the cereal, the more water and the longer the time required.

Bring water to boiling point in upper part of double boiler, placed directly on the stove.

Pour cereal slowly into boiling water, stirring constantly. Let boiling continue about five minutes till mixture begins to thicken. Place over boiling water in lower part of the boiler. Cover and cook gently with little stirring one hour or more, or till tender and soft. Or put in Fireless Cooker for three hours.

Serve hot, with or without sugar, with milk, cream or butter. Put in moulds with fruit and serve cold as dessert. Pack solidly in loaf shape, slice when cold, brown in hot fat, serve hot.

Corn Meal Mush.

Mix one cup cornmeal, one-fourth cup of flour, one teaspoon salt, one cup cold milk or water. When smooth blend with one pint boiling water, stir for about five minutes. When thick place over water or in steamers and cook one hour or more. Serve hot or pack in pan to fry, or dip in fat and toast under the gas.

Rice.

Pick over and wash thoroughly or parboil five minutes and drain. Then put in a buttered dish with twice its bulk of boiling water and set in a steam cooker. In three-quarters of an hour it should be tender and every kernel distinct, and it may be cooked longer without becoming mushy.

Rice Croquettes.

With one pint of cooked rice (if cold, reheated) blend one tablespoon butter and one or two beaten egg yolks. Season with salt, pepper and parsley, or with sugar and

spice. Divide in ten or twelve portions, press in firm shape, roll in egg and crumbs, and fry in deep fat.

Boston Baked Beans.

Soak one pint beans over night. Parboil in the morning until the skins crack readily with a slight pressure. A very little soda may be put into the water to help this process. Score the rind of one-fourth pound fat salt pork and rinse it. Drain the beans and put part in the bean pot, then the pork and cover with the beans, leaving only a little of the pork rind exposed. Mix one teaspoon of salt, one-fourth teaspoon of mustard and a tablespoon or more of molasses as desired, add water and pour over the beans. Cover and bake twelve hours or more, keeping the beans filled up with water until the last hour, when the cover should be removed and the pork rind and the top layer of beans should brown.

Potatoes.

Baked.

Choose those of equal size and scrub with brush. Cook in hot oven 30 to 40 minutes, or until soft. Then crack the skin to let out steam. The potato should be plump (not shriveled), and the inside white and mealy.

Boiled.

Wash, pare if imperfect or old. If not of uniform size, divide the larger ones. Put in boiling salted water and cook for 20 to 30 minutes, till tender. Drain off the water and shake the uncovered kettle to let the steam escape.

Riced.

Put boiled potatoes through strainer or ricer into a hot dish from which they are to be served.

Mashed.

In a hot pan mash boiled potatoes. For each half pint, add two tablespoons milk, one teaspoon butter, season with salt and pepper.

Croquettes.

Prepare mashed potato with less milk and one egg yolk for each half pint and season with celery salt, paprika and parsley. Roll in crumbs, egg and crumbs, and fry in deep fat.

Stuffed Potatoes.

Cut a slice from end of baked potatoes, scrape out inside, mash and season. Add chopped meat, cheese or parsley for variety. Refill skins and reheat in oven.

Canoes, or Potatoes on the Half Shell.

Cut the potatoes in two lengthwise, refill each part and brown.

Creamed.

Cut boiled potatoes in cubes or slices and reheat in thin white sauce, one-half cup to each cup of potato.

Hash.

Use two parts potato to one part meat, or equal amounts of each. Chop meat, chop or mash potato. Season with salt, pepper, onion, etc., moisten with gravy or water. For one cup hash, put one tablespoon fat in a frying pan. When hot, put in the hash and cook slowly, without stirring, until a brown crust forms on the bottom. Fold like an omelet.

French Hash.

Put meat and gravy in a deep dish, cover with mashed potato and bake till golden brown.

SUGAR.

Caramel.

Put sugar in a smooth iron pan over a hot fire and stir constantly with an old wooden spoon until melted to a light brown syrup. Scrape off any sugar that forms in lumps. When all is melted add an equal amount of boiling water and simmer a few moments until blended into a thick syrup.

A quantity of this may be made at once and kept on hand to flavor and sweeten custards and ice cream, or to serve as a sauce with other puddings.

If it should happen to brown beyond the shade of good maple syrup, let it go a little further until the sweet flavor

would be lost. Then dissolve as above and bottle to use for coloring soups and meat gravies.

Syrup.

Combine equal quantities of water and sugar in a saucepan and stir until dissolved. Boil five to ten minutes until only slightly reduced in quantity. Can while hot in small jars and keep on hand to sweeten fruit drinks or ices as the dissolving of the sugar in cold liquids is a slow and unsatisfactory process.

Fondant.

In an agate saucepan put one cup granulated sugar, about one-sixteenth of a teaspoon of cream of tartar—a bit the size of a small pea—and one-half cup of hot water. Stir till sugar is dissolved, then cover and cook without stirring. Skim and wipe the sides of the pan if necessary. Boil about ten minutes or till 238 to 240 degrees F., when it will form a soft ball in cold water. Turn into a greased bowl or platter and cool slightly. It will grain if stirred while too warm. Beat and knead till a smooth, creamy mass. If it hardens too rapidly dip the hands in water and continue the kneading.

Pack away in covered dish for a day or longer, then shape as desired. Colors and flavors must be very concentrated. By combination with chocolate, dates, figs, nuts, etc., a great variety of candies may be secured. This fondant is a very satisfactory frosting for cake and may be kept on hand. Warm it over water until it can be spread on the cake.

Boiled Frostings.

Cook one cup of sugar with one-half cup of water or less, and a bit of cream of tartar until it will thread, not quite reaching the soft ball stage. Then pour slowly on the stiffly beaten white of one egg and continue beating until cool enough to spread. Much depends on the moisture in the atmosphere as well as the dryness of the cake.

For a still softer frosting a larger proportion of egg white is used. This may be varied with different flavors and colors.

MISCELLANEOUS.

French Dressing for Salads.

One-fourth teaspoon salt, speck pepper, one tablespoon vinegar, two or three tablespoons oil.

Blend thoroughly and pour over the salad.

Mayonnaise Dressing.

One egg yolk, one-half to one cup oil, one tablespoon vinegar, one tablespoon lemon juice, one-half teaspoon salt, one-half teaspoon mustard, few grains cayenne.

Mix vinegar, lemon juice and seasoning.

Beat egg yolk, add oil drop by drop at first, beating continually. When thick add a little of the seasoning mixture, then more oil and alternate until all is used.

Utensils and materials should be kept as cool as possible.

Chocolate.

Melt one ounce chocolate in saucepan over hot water, add a few grains salt, one tablespoon sugar, one-half pint boiling water; stir till smooth; boil one minute. Blend with one pint hot milk and cook in double boiler.

Beat with Dover egg beater to prevent skin forming on top. Just before serving, an egg yolk may be added to the chocolate. Serve with whipped cream.

Chocolate and cocoa both contain starch which requires cooking.

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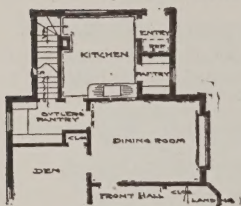
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I. THE HOUSE: ITS PLAN, DECORATION AND CARE, by Prof. Isabel Bevier, University of Illinois.

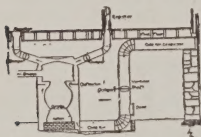


Treats of the development of the modern home and the American house, the planning of convenient houses, construction, floors; the problems of decoration and furnishing; gives suggestions for changes, repairs, household conveniences; "The Cost of Building," etc.

II. HOUSEHOLD BACTERIOLOGY, by S. Maria Elliott, Simmons College.

An interesting account of the microscopic forms of life and their relation for good and evil to the household; how to make "dust gardens" showing what dust is; disease germs and how to avoid them; the protecting agencies of the body and how to keep them active; sanitation, etc.

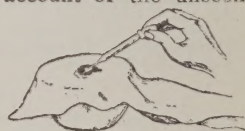
III. HOUSEHOLD HYGIENE, by S. Maria Elliott, Simmons College, Boston.



The healthful home; the best situation for the house; importance of the cellar; all about drainage, heating, lighting, disposal of wastes, plumbing tests, the water supply; practical suggestions for sanitary furnishings and care; hygienic housekeeping, etc.

IV. CHEMISTRY OF THE HOUSEHOLD, by Margaret E. Dodd, S. B., Mass. Institute of Technology.

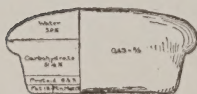
"A Day's Chemistry"—a fascinating account of the unseen forces in the common things met in a day's work—water, air, fire, fuel; chemistry of food, of digestion, of cookery, of baking powder, of cleaning, of laundry, of stains, of lighting; home tests; home-made baking powder, soap, etc., etc.



V. PRINCIPLES OF COOKERY, by Anna Barrows, Columbia University and Chautauqua School of Cookery.

"A key to the cook books"—analyzing and explaining the principles on which success rests; all approved methods of cookery explained, particular attention being paid to economy of time and materials; full consideration of menus, making a fireless cook-stove, "Directions for Waitresses," etc.

VI. FOOD AND DIETETICS, by Prof. Alice P. Norton, University of Chicago.



Tells of food economy, of the composition, nutritive value and digestibility of foods; how the body makes use of food; the balanced ration; healthful diet for the sedentary, the aged, the children, and so on; food adulterations, etc.

IN HOME ECONOMICS

AUTHORS AND PARTIAL SYNOPSIS

VII. HOUSEHOLD MANAGEMENT, by Prof. Bertha M. Terrill of University of Vermont

Full treatise on household finance; economy in spending; the best division of income; household accounting; system in housework; the servant problem; help by the hour; buying supplies and furnishings; how to market economically; cuts of meat; season of vegetables; experiences of students; "Co-operative Housekeeping," etc.



VIII. PERSONAL HYGIENE, by M. LeBosquet, S.B., Director of A.S.H.E.

The wonderful human machine; running the machine; care of the machine—sufficient physiology given to show the reasons for the directions for maintaining health; emphasis placed on *do* rather than *don't*; articles on "Ethics of Health," "Use and Abuse of Drugs," etc.

IX. HOME CARE OF THE SICK, by Amy E. Pope, Presbyterian Hospital, New York City.

Includes the essentials of trained nursing; specific directions for handling and caring for the patient; nursing in contagious diseases; obstetrics; food for the sick; emergencies; poisons and their antidotes; bandaging; articles on communicable diseases, etc.



X. TEXTILES AND CLOTHING, by Kate H. Watson, formerly Lewis Institute and University of Chicago.



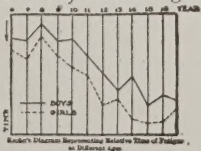
Fully illustrated descriptions of primitive and modern methods of manufacture; textile fibres and fabrics; plain and ornamental stitches and their applications; machine sewing; cutting and fitting of waists and skirts, color and ornament; children's clothes; repairs, etc.

XI. STUDY OF CHILD LIFE, by Marion Foster Washburne, editor "Mothers' Magazine."

Thoroughly sensible and practical directions for the treatment of children; faults and their remedies; character building; home occupations; play; associates; studies and accomplishments; religious training; the sex question, answers to questions, etc.

XII. CARE OF CHILDREN, by Dr. A. C. Cotton, Prof. Children's Diseases, Rush Medical College, University of Chicago.

The care of the baby before birth and of the new baby; healthful clothing; development and growth of the child; authoritative and specific directions for feeding; food disorders; food for older children, treatment of children's ailments; hygiene of the child through the pubescence period, etc.





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THIS new correspondence course in cookery has been prepared to meet the needs of home-makers who have had little or no systematic training in modern methods of cooking but who desire to provide for their families simple, yet appetizing and wholesome meals, with the least expenditure of time, effort and money.

The ordinary cook book, with its numerous and complicated recipes, is of little help to the beginner. It does not answer the oft occurring question, “What shall I provide for today, tomorrow, for next week”? It gives no hint of wholesome food combinations or balanced diet.

The problem of home cooking is not only how to cook various separate dishes but how to prepare *whole meals*. The plan of “Lessons in Cooking” is unique and original in that a systematic course in cooking is taught through a series of menus, with detailed directions, not only for cooking the separate dishes, but also for preparing and serving *each meal as a whole*. The course is divided into twelve parts, in each of which is given the recipes for a week’s menu, typical of one month of the year—over 250 meals in all. In the first lessons, simple operations of cooking are described and gradually the more difficult and complicated recipes are introduced, leading to advanced work in the later lessons. Throughout the course the question of wholesome food combinations and balanced meals is carefully considered and special emphasis is given to economy of time and money.

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Please enroll me in your new correspondence “Lessons in Cooking,” in twelve parts, to be sent one each month. I agree to pay introductory half tuition fee of \$6.00; \$1.00 herewith and the balance at the rate of \$1.00 a month for five months (\$5.00 cash in advance, if preferred). Money to be refunded if not satisfactory.

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